

CLAIMS

1. A multipanel sliding door comprising at least two panels which are supported for travel in substantially parallel planes along runners, characterised in that a rack and wheelwork arrangement is provided for the movement of the door panels.
2. The multipanel sliding door of claim 1, characterised in that it is comprised of:
 - a door header F extending parallel to the door runners,
 - a set of n adjacent panels $P = \{P_0, P_1, \dots, P_{n-1}\}$, whereof a panel P_0 is stationary and the remaining $n-1$ panels P_1, P_2, \dots, P_{n-1} are supported for travel in planes substantially parallel thereto, the n panels P_0, P_1, \dots, P_{n-1} of set P having equal width L ,
 - a first set of $n-2$ racks $CF = \{CF_0, CF_1, \dots, CF_{n-3}\}$ which are fixedly supported by door header F, the length of racks $CF_0, CF_1, \dots, CF_{n-3}$ of set CF being equal to $L, 2L, \dots, (n-2)L$, respectively,
 - a second set of $n-2$ racks $CP = \{CP_2, CP_3, \dots, CP_{n-1}\}$ which are attached to or formed unitarily with panels P_2, P_3, \dots, P_{n-1} , respectively, of set P , the length of racks $CP_2, CP_3, \dots, CP_{n-1}$ of set CP being equal to L ,
 - a set of $n-2$ wheelworks $R = \{R_1, R_2, \dots, R_{n-2}\}$ which are rotatably mounted on $n-2$ panels P_1, P_2, \dots, P_{n-2} ,

respectively, of set P and are designed to mesh together with first CF and second CP set of racks,

set R including:

- 5 - a wheelwork R_1 formed of a single toothed wheel which is meshed together with rack CF_0 of set CF and with rack CP_2 of set CP, and
- 10 - $n-3$ wheelworks R_2, R_3, \dots, R_{n-2} each formed of two coaxial and co-rotating toothed wheels, whereof a first larger diameter toothed wheel is meshed together with rack $CF_1, CF_2, \dots, CF_{n-3}$, respectively, of set CF and a second smaller diameter toothed wheel is meshed together with rack $CP_3, CP_4, \dots, CP_{n-1}$ of set CP, wherein the ratio of the diameter D_k of the larger toothed wheel to the diameter d_k of the smaller toothed wheel of k -th wheelwork R_k is equal to $k = 2, 3, \dots, n-2$.

3. The multipanel sliding door of claim 1 characterised in that it is comprised of:

- 20 - a set of n adjacent panels $P = \{P_0, P_1, \dots, P_{n-1}\}$, whereof a panel P_0 is stationary and the remaining $n-1$ panels P_1, P_2, \dots, P_{n-1} are supported for travel in planes substantially parallel thereto, the n panels P_0, P_1, \dots, P_{n-1} of set P having equal width L , and $n-2$ panels P_0, P_1, \dots, P_{n-3} of set P having an extension arm B_0, B_1, \dots, B_{n-3} , respectively, at

their top extending in the direction of travel of the panels,

- a first set of $n-2$ racks $CS = \{CS_0, CS_1, \dots, CS_{n-3}\}$ which are attached to or formed unitarily with extension arms B_0, B_1, \dots, B_{n-3} , of $n-2$ panels P_0, P_1, \dots, P_{n-3} , respectively, of set P,
- a second set of $n-2$ racks $CD = \{CD_2, CD_3, \dots, CD_{n-1}\}$ which are attached to or formed unitarily with panels P_2, P_3, \dots, P_{n-1} , respectively, of set P,
- a set of $n-2$ wheelworks $R = \{R_1, R_2, \dots, R_{n-2}\}$ which are rotatably mounted on $n-2$ panels P_1, P_2, \dots, P_{n-2} , respectively, of set P and are designed to mesh together with first CS and second CD set of racks.

4. The multipanel sliding door of claim 1, characterised in that it is comprised of:

- a set of n adjacent panels $P = \{P_0, P_1, \dots, P_{n-1}\}$, which are supported for travel in substantially parallel planes and have equal width L ,
- a first set of $n-2$ racks $CS = \{CS_0, CS_1, \dots, CS_{n-3}\}$ which are attached to or formed unitarily with $n-2$ panels P_0, P_1, \dots, P_{n-3} , respectively, of set P,
- a second set of $n-2$ racks $CD = \{CD_2, CD_3, \dots, CD_{n-1}\}$ which are attached to or formed unitarily with $n-2$ panels P_2, P_3, \dots, P_{n-1} , respectively, of set P,

- a set of $n-2$ pairs of wheelworks $R = \{(RS_1, RD_1), (RS_2, RD_2), \dots, (RS_{n-2}, RD_{n-2})\}$ which are rotatably mounted on $n-2$ panels P_1, P_2, \dots, P_{n-1} , respectively, each pair of wheelworks $(RS_1, RD_1), (RS_2, RD_2), \dots, (RS_{n-2}, RD_{n-2})$ including a first wheelwork $RS_1, RS_2, \dots, RS_{n-2}$ designed to mesh together with rack $CD_2, CD_3, \dots, CD_{n-1}$, respectively, of second set of racks CD and a second wheelwork $RD_1, RD_2, \dots, RD_{n-2}$ designed to mesh with rack $CS_0, CS_1, \dots, CS_{n-3}$, respectively, of first set of racks CS , the first and second wheelwork of each pair of wheelworks $(RS_1, RD_1), (RS_2, RD_2), \dots, (RS_{n-2}, RD_{n-2})$ of set R being interlinked with one another by a transmission T_1, T_2, \dots, T_{n-2} , respectively, in order to rotate at the same rotational speed.

15